

CLAIMS:

1. A method for manufacturing an optical fiber comprising the steps of applying at least one electron beam-curable resin composition to a bare optical fiber, and exposing the resin composition to electron beams to cure the resin composition, thereby producing an optical fiber having one or more resin coatings,

said electron beam-curable resin composition comprising (A) 10 to 90% by weight of a urethane (meth)acrylate oligomer and (B) 90 to 10% by weight of a reactive diluent,

said exposure to electron beams being done under conditions including (a) an electron beam acceleration voltage of 50 to 150 kV, (b) a distance of 0.5 mm to less than 10 mm between an electron beam window of an electron beam irradiating unit and the surface of the optical fiber, (c) an atmosphere of nitrogen or helium under atmospheric pressure, (d) an oxygen concentration of up to 1,000 ppm in the atmosphere, and (e) at least two directions of irradiation to the optical fiber.

2. A method for manufacturing a multilayer coated optical fiber comprising the steps of applying at least one electron beam-curable resin composition to an optical fiber having one or more resin coatings, and exposing the resin composition to electron beams to cure the resin composition, thereby producing a multilayer coated optical fiber,

said electron beam-curable resin composition comprising (A) 10 to 90% by weight of a urethane (meth)acrylate oligomer and (B) 90 to 10% by weight of a reactive diluent,

said exposure to electron beams being done under conditions including (a) an electron beam acceleration voltage of 50 to 150 kV, (b) a distance of 0.5 mm to less than 10 mm between an electron beam window of an electron beam irradiating unit and the surface of the optical fiber,

(c) an atmosphere of nitrogen or helium under atmospheric pressure, (d) an oxygen concentration of up to 1,000 ppm in the atmosphere, and (e) at least two directions of irradiation to the optical fiber.

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3. A method for manufacturing an optical fiber tape comprising the steps of applying at least one electron beam-curable resin composition to a bundle of optical fibers, and exposing the resin composition to electron beams to cure the resin composition, thereby producing a resin-bound optical fiber tape,

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said electron beam-curable resin composition comprising (A) 10 to 90% by weight of a urethane (meth)acrylate oligomer and (B) 90 to 10% by weight of a reactive diluent,

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said exposure to electron beams being done under conditions including (a) an electron beam acceleration voltage of 100 to 190 kV, (b) a distance of 0.5 mm to less than 10 mm between an electron beam window of an electron beam irradiating unit and the surface of the optical fiber bundle, (c) an atmosphere of nitrogen or helium under atmospheric pressure, (d) an oxygen concentration of up to 1,000 ppm in the atmosphere, and (e) at least two directions of irradiation to the optical fiber bundle.

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